

Course Title: 3D Computer Animation: Form, Light and Motion.

Course Number: Arts College 749

Prerequisites: Graduate standing or permission of instructor

Instructor: Vita Berezina-Blackburn

Class Website: <http://accad.osu.edu/~vberezin/classes/intro/>

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Course Description:

This course presents concepts and techniques of 3D computer animation for graduate students in multiple disciplines, providing an overview of modeling, lighting and motion.. Students are encouraged to apply the coursework to their thesis research. The course also serves as a foundation for students interested in advanced topics courses offered in computer animation.

Course Objectives / Student Learning Outcomes:

Students completing this course can expect to have a fundamental understanding of the process for producing computer-generated animation:

- Planning animation production
- Representation of 3D perspective and geometry
- Organization of hierarchies in a 3D scene
- Basic polygonal and parametric modeling techniques
- Fundamental principles of key-frame animation
- Simple lighting schemes
- Concepts of materials and texture mapping

Course Methodology:

The course will consist of instructor lectures and demonstrations, class discussions and lab sessions. Students are expected to seek and apply their own unique creative voice in designing solutions for the tasks presented.

Course Texts and Resources:

Required:

Class handouts.

Introducing Maya 2009: 3D for Beginners .

Dariush Derakhshani. Wiley. ISBN: 978-0-470-37237-1

Recommended:

The Art of 3D: Computer Animation and Effects, 3rd Edition

Isaac V. Kerlow. Wiley. ISBN: 0-471-43036-6

Learning Autodesk Maya 2009 Foundation. Autodesk. Sybex/Wiley ISBN 978-1-897-177-51-8.

[Learning Autodesk® Maya® 2009 : The Modeling & Animation Handbook](#) Autodesk. Sybex/Wiley ISBN 978-1-897-177-51-8.

On ACCAD computers:

Start/Programs/Maya Learning Tools

Web:

<http://www.highend3d.com>
<http://www.cgsociety.org/>
<http://forums.cgsociety.org/>
<http://www.cgchannel.com/>
<http://www.3dtotal.com/>
<http://www.learning-maya.com>

Grading Policy:

All students are required to be on time and in attendance for each and every class. Two absences will lower a final grade by 1/2 a letter, three absences will lower a final grade by one letter and four absences will result in failure of the course.

Adherence to deadlines is expected. Work presented late will be marked down one grade letter for each class meeting missed. See description below for value of each assignment or exam towards the final grade

Students choosing to use "at home" hardware and software must have their current working files on the system and available for review at the beginning of each and every class. *Problems with home systems and/or incompatibility will not be an acceptable excuse for missed goals.* Unless there is a complete ACCAD system failure, technical difficulties are never an acceptable excuse for not meeting a deadline.

Project 1 – 30 % of final grade
Project 2 – 30 % of final grade
Project 3 – 40% of final grade

The goal of each assignment will be discussed in class and examples will be provided.

Students **are expected to participate** in class discussions and inform each others' work. Lack of class participation may result in up to 5 percent grade reduction.

Schedule (SUBJECT TO CHANGE – check *Weekly Notes* section on class website)

Week 1: Computer Animation Process and Pipeline. Introduction to Maya 2010.

Week 2: Introduction to Three Dimensional Space. Simple Hierarchies. Primitives and Boolean Operations.

Week 3: Key Frame Animation.

Week 4: Materials and Lights. Hardware Render.

Week 5: Polygon Modeling.
Project 1 due.

Week 6: Curves and NURBS Modeling.

Week 7: Surface Shading and Single Object Lighting. Software Render.

Week 8: Animating hierarchies. Joints, Bones and Deformers.
Project 2 due.

Week 9: Camera Animation.

Week 10: Lighting for Scenes and Animation.

Final Week: Project 3 due.

Project Descriptions:

Project 1

Simple Structure

Use primitives and booleans to build a simple structure. Animate to show how it works. Use material colors to differentiate between elements, render animation with hardware render.

Project 2

Focus on Object

Model an object using polygon and/or NURBS modeling techniques. Texture the model and light it using three point lighting setup. Animate Material or Light Properties. Render a sequence of frames with software render.

Project 3

Focus on Viewer Experience

Model an environment, texture with simple materials. Objects, materials and lights made for previous assignments may be included in the scene. Animate camera exploration. Create a lighting setup that supports camera movement. Render a sequence of frames using Maya Software Renderer, assemble a self contained AVI movie.

Statement of Academic Misconduct:

In accordance with Faculty Rule 3335-5-487, all instances of alleged academic misconduct will be reported to the department chairperson and the Committee on Academic Misconduct (The University's rules on academic misconduct can be found at <http://oaa.osu.edu/coam/home.html>). Academic misconduct is grounds for failing the course and may be grounds for further sanctions. Academic misconduct includes, but is not limited to, giving or receiving information during an exam and submitting plagiarized work for academic requirements. The University provides guidelines for research on the web at <http://gateway.lib.ohio-state.edu/tutor/>.

Students with Special Needs/Disabilities:

If you need an accommodation based on the impact of a disability, you should contact us to arrange an appointment as soon as possible. At the appointment, we can discuss the course format, anticipate your needs, and explore potential accommodations. We rely on the Office of Disability Services for assistance in verifying the need for accommodations and developing accommodations strategies. If you have not previously contacted the Office of Disability Services, we encourage you to do so by calling 292-3307.